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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Gerd Scheying

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EXAMINER

OLSEN, KAJ K

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/825,571	Applicant(s) SCHEYING ET AL.	
	Examiner KAJ K. OLSEN	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. spare.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Sparks (US 6,637,257).
4. Sparks discloses a sensor device for measuring pH value (see column 3, lines 55-60), comprising: a substrate (12); two electrodes (20, 22) positioned on the substrate, wherein the two electrodes are applied with the aid of thick- film technology (see column 4, lines 23 - 26), and wherein the two electrodes form an interdigital comb structure (see column 3, lines 40 - 43); and an evaluation circuit (42) in communication with the electrodes (column 5, lines 54 - 55). While it is understood that oil is not part of the claimed structure, Sparks discloses using the device to monitor pH of oil (see column 1, lines 23-24). With respect to the Sparks being a potentiometric device, that is only the intended use of the apparatus and the intended use need not be given further due consideration in determining patentability.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sparks (US 6,637,257) in view of Kusanagi et al. (US 5,215,643).

9. The device of Sparks was discussed above with regards to claim 1. Regarding claims 2 and 3, numerical values for the spacing of the comb structure are not disclosed.

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Kusanagi explains that it is preferable for the electrodes of an interdigital comb to be spaced by 10 to 3000 micrometers (column 4, lines 24 - 30). It would have been obvious to one of ordinary skill in the art to have selected a value in this range, because Kusanagi explains that these values are preferable (see column 4, lines 24 - 30).

10. Claims 4 - 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sparks (US 6,637,257) in view of Kusanagi et al. (US 5,215,643) as applied to claim 3 above, and further in view of Tani (US 5,904,987).

11. Regarding claims 4 and 5, Sparks further discloses that the substrate may include ceramic (column 3, lines 25 - 28) and explains the importance of low electrical conductivity (see column 4, lines 26 - 31). However, "glass-ceramic" (claim 4) and "low-temperature-sintering glass ceramic" (claim 5) are not explicitly disclosed. Tani teaches low temperature sintering glass ceramic that cures at a temperature under 1000 degrees C (see column 1, lines 35-40). It would have been obvious to one of ordinary skill in the art to have modified the substrate of Sparks in view of Kusanagi to be glass ceramic that cures at a temperature under 1000 degrees C as taught by Tani, because Tani explains that this permits a wider range of metals to be used for electrodes (see column 1, lines 14-45).

12. Regarding claims 6 and 7, Sparks also discloses making electrodes of metal oxides, including iridium oxide (see column 5, lines 13 - 18).

13. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sparks (US 6,637,257), Kusanagi et al. (US 5,215,643) and Tani (US 5,904,987) as applied to claim 7 above, and further in view of Carter (US 5,126,034).

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14. Regarding claim 8, Sparks, Kusanagi and Tani do not disclose an electrode made of silver and silver halide. Carter discloses that an electrode of an interdigital comb may be silver/silver chloride (see column 3, lines 28 - 31). It would have been obvious to one of ordinary skill in the art to have made one of the electrodes silver/silver chloride because Carter explains that silver/silver chloride is "especially preferred" for being a reference electrode with a known potential (see column 2, lines 40 - 47).

15. Claims 9 - 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sparks (US 6,637,257) in view of Radford et al. (US 3,843,400).

16. The device of Sparks was discussed above with regards to claim 1. The electrodes are not disclosed as being made from the paste compositions of claims 9 - 13.

Regarding claims 9 and 10, Radford teaches making electrodes from paste (see column 5, lines 30 - 35), wherein, in order to improve adhesion (see column 2, lines 17 - 20) between the electrodes and the substrate, the pastes include an inorganic material of 10% (see column 5, line 26).

17. Regarding claim 11, Radford teaches the inorganic material corresponds to the substrate (see column 4, lines 24 - 26 and column 7, line 13 - column 8, line 24).

Regarding claims 12 and 13, Radford teaches the pastes are made of a powder mixture of electrode material and inorganic material (see column 7, lines 30 - 35 and column 5, lines 25 - 28) and a carrier material (see column 7, line 35 - column 8, line 10). As taught in column 7, line 35 - column 8, line 10 there may be up to 30% solvent plus small amounts of other carrier substances, meaning that the amount of powder taught overlaps the 10% to 70% claimed. It would have been obvious to one of ordinary skill the art to have made

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the electrodes of Sparks in accordance with the teachings of Radford, because Radford explains in column 2, lines 16 - 20 that better reproducibility is achieved.

18. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sparks (US 6,637,257) in view of Koguchi et al. (US 6,357,089).

19. The device of Sparks was discussed above with regards to claim 1. Regarding claims 14 and 15, a hydrous polymer is not disclosed.

Koguchi teaches providing electrodes with a hydrous polymer layer, specifically a polyacryl amide gel (see column 4, lines 43 - 67). It would have been obvious to one of ordinary skill in the art to have provided the electrodes of Sparks with a hydrous polymer layer, specifically a polyacryl amide gel layer, because Koguchi explains that this layer allows the electrode to interact with a living body (see column 4, lines 43 - 67).

20. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sparks (US 6,637,257) in view of Kusanagi et al. (US 5,215,643) as applied to claim 3 above, and further in view of Koguchi et al. (US 6,357,089).

21. Regarding claims 16 and 17, a hydrous polymer is not disclosed. Koguchi teaches providing electrodes with a hydrous polymer layer, specifically a polyacryl amide gel (see column 4, lines 43 - 67). It would have been obvious to one of ordinary skill in the art to have provided the electrodes of Sparks with a hydrous polymer layer, specifically a polyacryl amide gel layer, because Koguchi explains that this layer allows the electrode to interact with a living body (see column 4, lines 43 - 67).

22. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sparks (US 6,637,257), Kusanagi et al. (US 5,215,643) and Tani (US 5,904,987) as applied to claim 4 above, and further in view of Koguchi et al. (US 6,357,089).

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23. Regarding claims 18 and 19, a hydrous polymer is not disclosed.

Koguchi teaches providing electrodes with a hydrous polymer layer, specifically a polyacryl amide gel (see column 4, lines 43 - 67). It would have been obvious to one of ordinary skill in the art to have provided the electrodes of Sparks with a hydrous polymer layer, specifically a polyacryl amide gel layer, because Koguchi explains that this layer allows the electrode to interact with a living body (see column 4, lines 43 - 67).

24. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sparks (US 6,637,257) in view of Hornberger (US 1,956,741).

25. The device of Sparks was discussed above with regards to claim 1. Regarding claim 20, Sparks does not explicitly state that the evaluation circuit is configured to normalize a pH measurement in response to different operating states of motor oil.

26. The instant specification gives different temperatures as an example of different operating states (see page 8, lines 4 - 6). Hornberger teaches compensator (R2) "to automatically compensate the electrode circuit for variations in the pH value due to temperature changes" (page 4, lines 56 - 60). It would have been obvious to one of ordinary skill in the art to have configured the evaluation circuit of Sparks to normalize a measurement in response to different temperatures as taught by Hornberger to achieve accurate results (see page 4, lines 56 - 60).

Response to Arguments

27. Applicant's arguments filed 4-22-2008 have been fully considered but they are not persuasive. Applicant urges that Sparks is not drawn to a potentiometric device, but rather is based on a electrical resistance or current flow between the electrodes. Although

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applicant appears to be correct concerning Sparks, the claims do not currently require Sparks be utilized as a potentiometric device as “potentiometric sensor device” is only the intended use of the device and the intended use need not be given further due consideration in determining patentability. If applicant were to amend the final limitation of claim 1 to explicitly recite structure drawn to the potentiometric detection, the examiner would consider withdrawing the rejection of Sparks against the claims. The examiner suggests the applicant amend the final limitations of claim 1 to read “an evaluation circuit in communication with the electrodes, the evaluation circuit configured to detect a degradation process of a motor oil based on the potentiometric response of the two electrodes”.

28. Applicant’s remaining rejections appear to rely on the perceived failings of the earlier teaching of Sparks. Because these earlier arguments concerning Sparks were unpersuasive, these further arguments are also unpersuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAJ K. OLSEN whose telephone number is (571)272-1344. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kaj K Olsen/
Primary Examiner, Art Unit 1795
August 18, 2008